COLOUR VARIATION IN PUPAE OF EUPHYDRYAS AURINIA.

By T. D. Fearnehough.

(Plate 4.)

An interesting instance of the effect of external conditions upon pupal colouration was observed during the rearing of a batch of larvae of the Marsh Fritillary. A number of *aurinia* larvae, mostly in the final stage of growth, were received from a Devonshire correspondent in the spring of this year. For some days the larvae were kept in a large closed tin and supplied at frequent intervals with fresh sprays of honeysuckle. Some of them fed very rapidly and soon pupated.

A closed tin is probably the most unsuitable receptacle possible for *aurinia* larvae, for they rarely thrive when denied a full quota of sunshine, so at the earliest opportunity better rearing conditions were arranged. A large plant pot was scrubbed clean and a bunch of honeysuckle sprays were arranged with their stems passing through the drainage hole and dipping into a vessel of water placed beneath. The top of the plant pot was covered with a piece of brussels net.

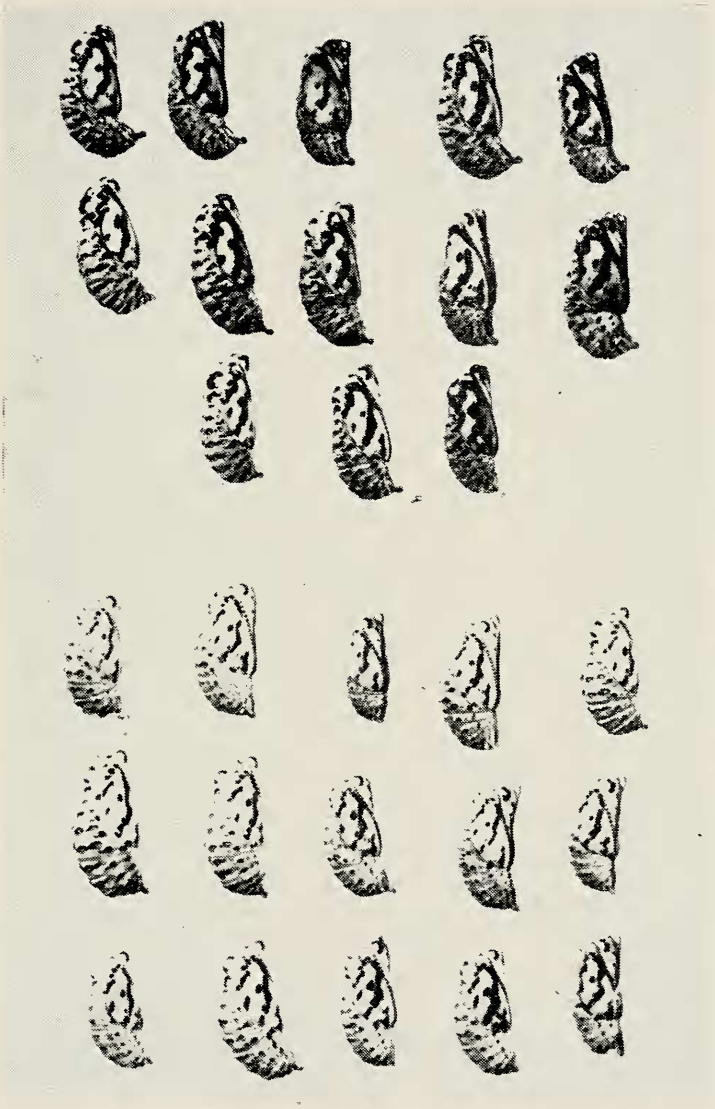
Since the weather was cold and cloudy during this period, extra comfort was provided for the larvae by suspending an 100-watt electric light bulb about eight inches above the net covering. This light was kept burning during the daytime and was turned off at night. The larvae obviously relished the light and radiated warmth, and gathered along the inner rim of the plant pot to bask under the artificial sun. They made frequent excursions on to the foodplant for feeding, and most of them were soon ready for pupation.

With few exceptions the larvae spun up on the netting cover and pupation invariably occurred when the light was burning. In quite a number of instances this fascinating performance was observed. After changing, the pupae were left undisturbed for a couple of days to thoroughly dry and harden. When these pupae were eventually removed from their positions a striking difference in general appearance, compared with the pupae which had changed in the closed tin, became apparent.

The two batches of pupae are illustrated on Plate IV, which shows all the healthy pupae obtained. The upper 13 examples formed in the closed tin, and the lower 15 specimens formed under the artificial lighting conditions. It will be seen that the latter pupae are generally paler with the markings comparatively small and tending towards obsolescence, whilst in the former specimens the general appearance is darker with the markings tending to enlargement. The bodies of the pale pupae were very free from yellow or orange markings, but the darker specimens were strongly marked with these colours.

Subsequently all the pupae depicted on the plate, with the exception of the central example in the top row, produced butterflies. This exception proved to be diseased in the manner only two familiar to rearers of this species.

Under the conditions of this accidental experiment it is not possible to draw many conclusions. The obvious variant is the light intensity; nil in one instance and high in the other. The radiation given out by a filament electric bulb is, however, complex, and it may well be that



T. D. Fearnehough.

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